

Fig. 1

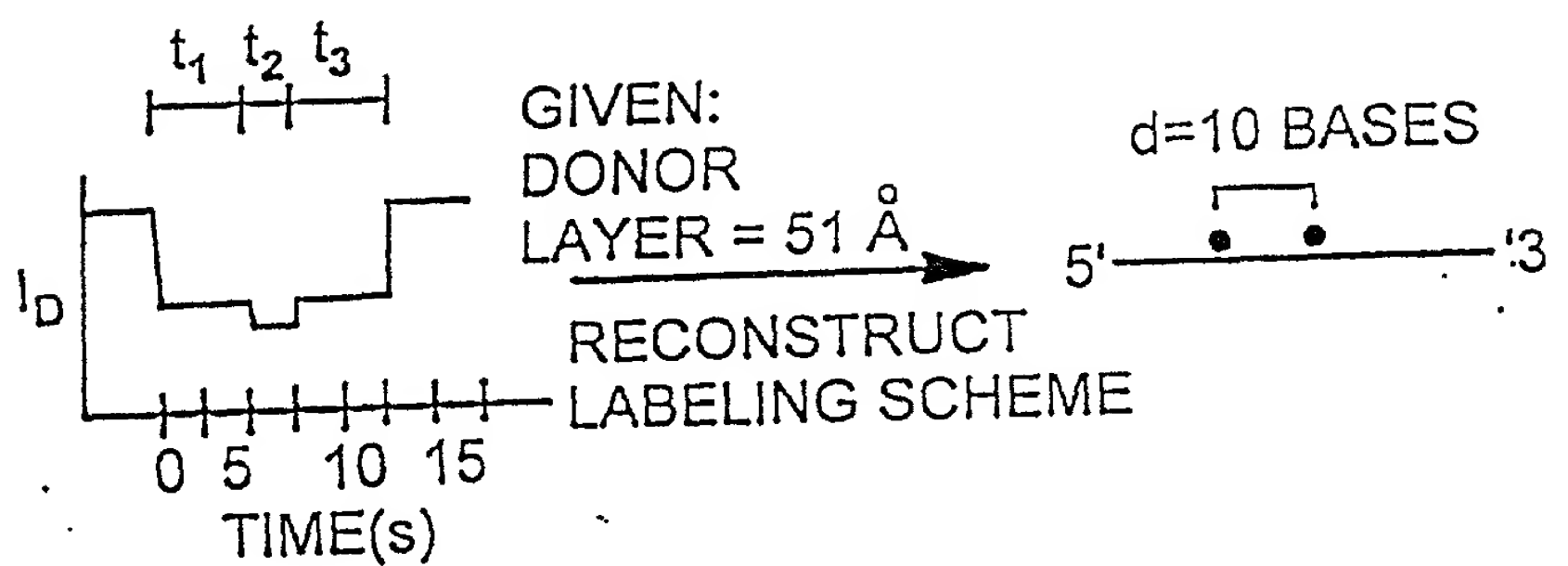


Fig. 2

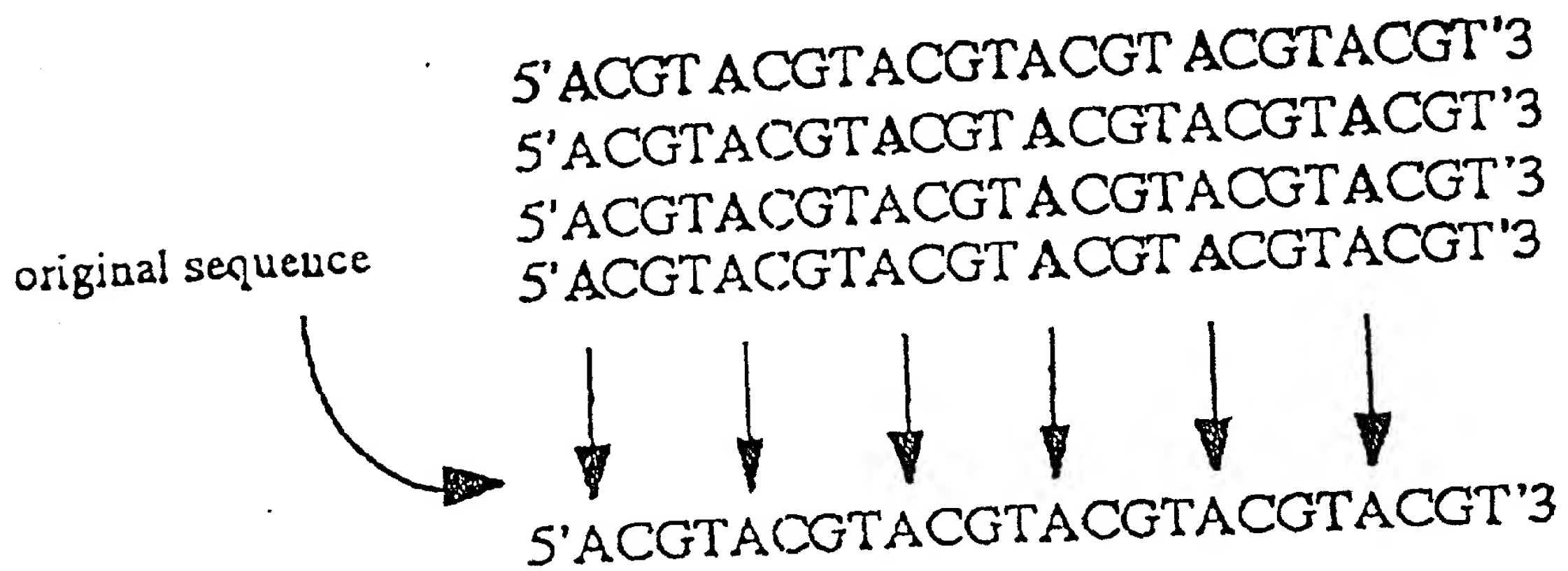


FIGURE 3

Target sequence, 5'ACGT'3

conclusions

Set AC 5'ACGT'3

AG 5'ACGT'3

AT 5'ACGT'3

CG 5'ACGT'3

CT 5'ACGT'3

GT 5'ACGT'3

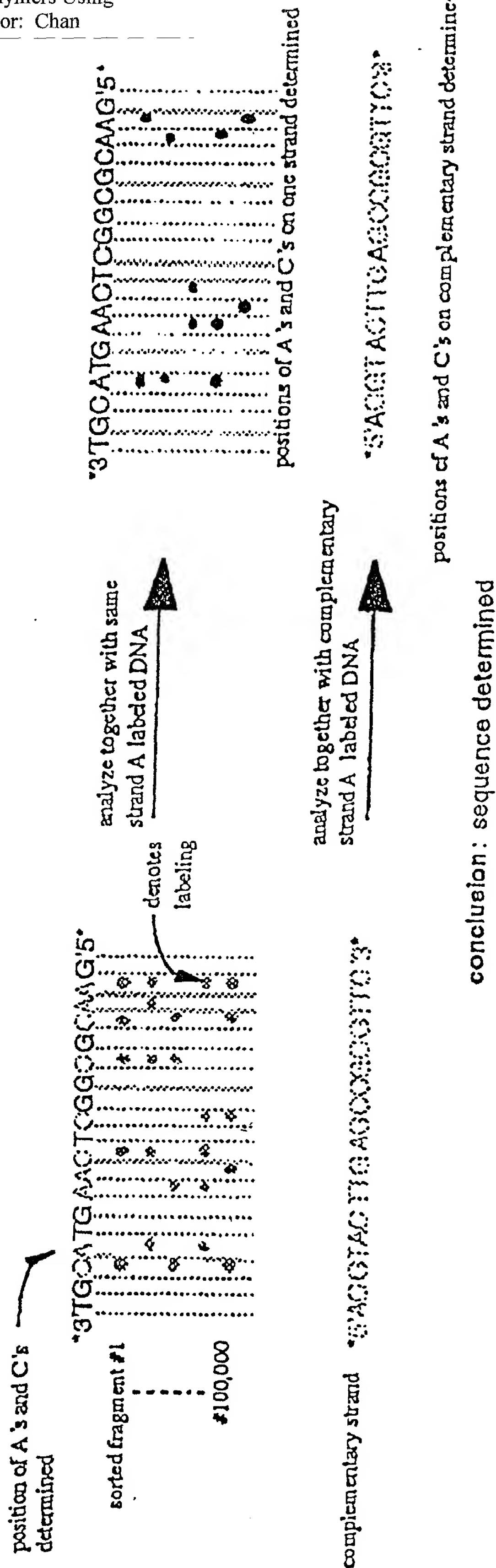
target is a 4-mer
sequence is A(C,G,T), order
of bases following A unknown

G and T follow C,
sequence is AC(G,T)

T follows G,
sequence is ACGT

Two base labeling and analysis.

FIGURE 4



Sorted fragments are used to reconstruct the sequence of the DNA. Using population analysis, the position of the A's and C's on one strand are determined. Subsequently, the position of all the A's on the same strand are determined using the same method. In a similar fashion, the positions of the A's and C's on the complementary strand give information about the G's and T's of the first strand analyzed. The sequence can thus be reconstructed.

FIGURE 5

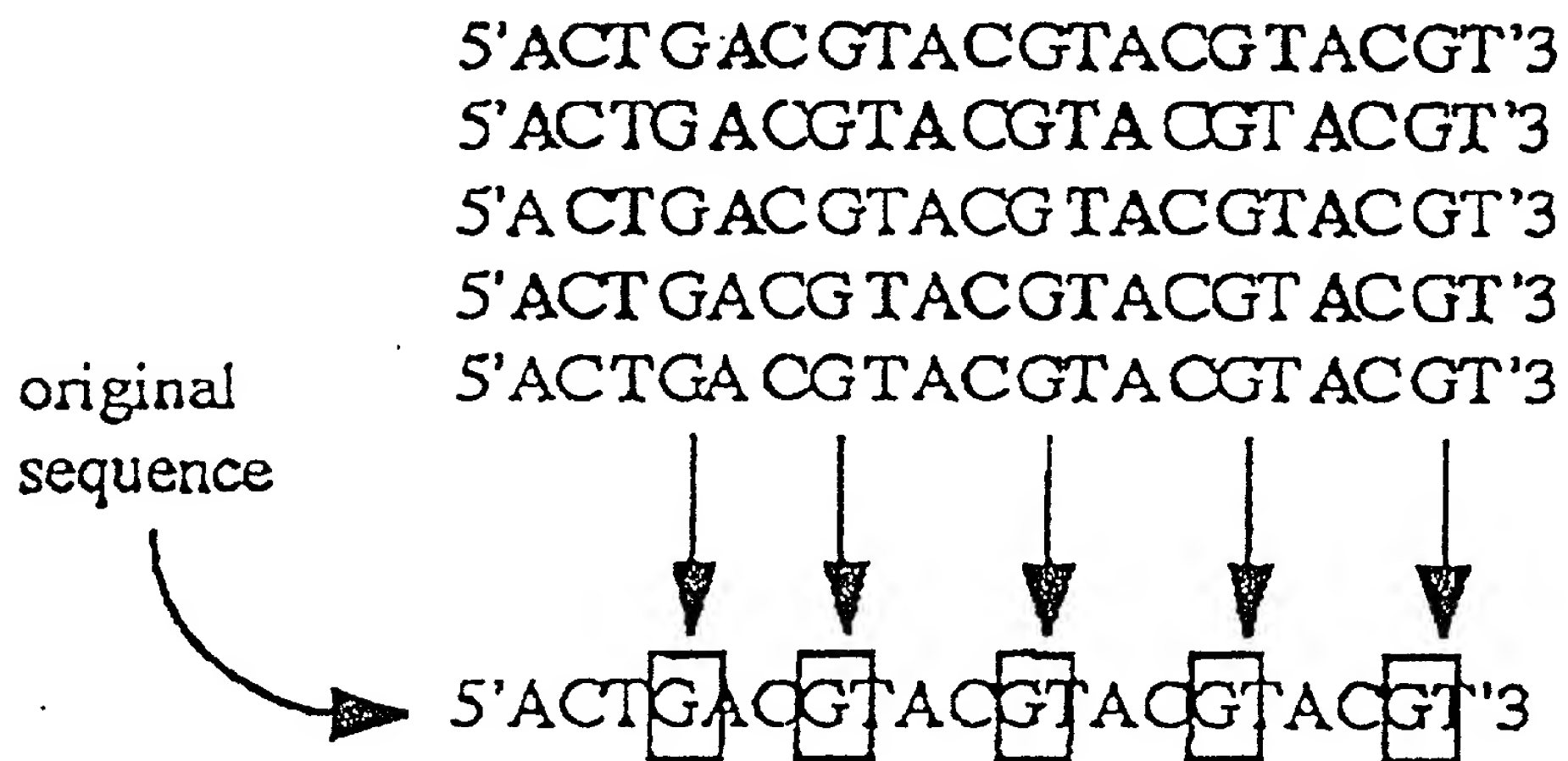
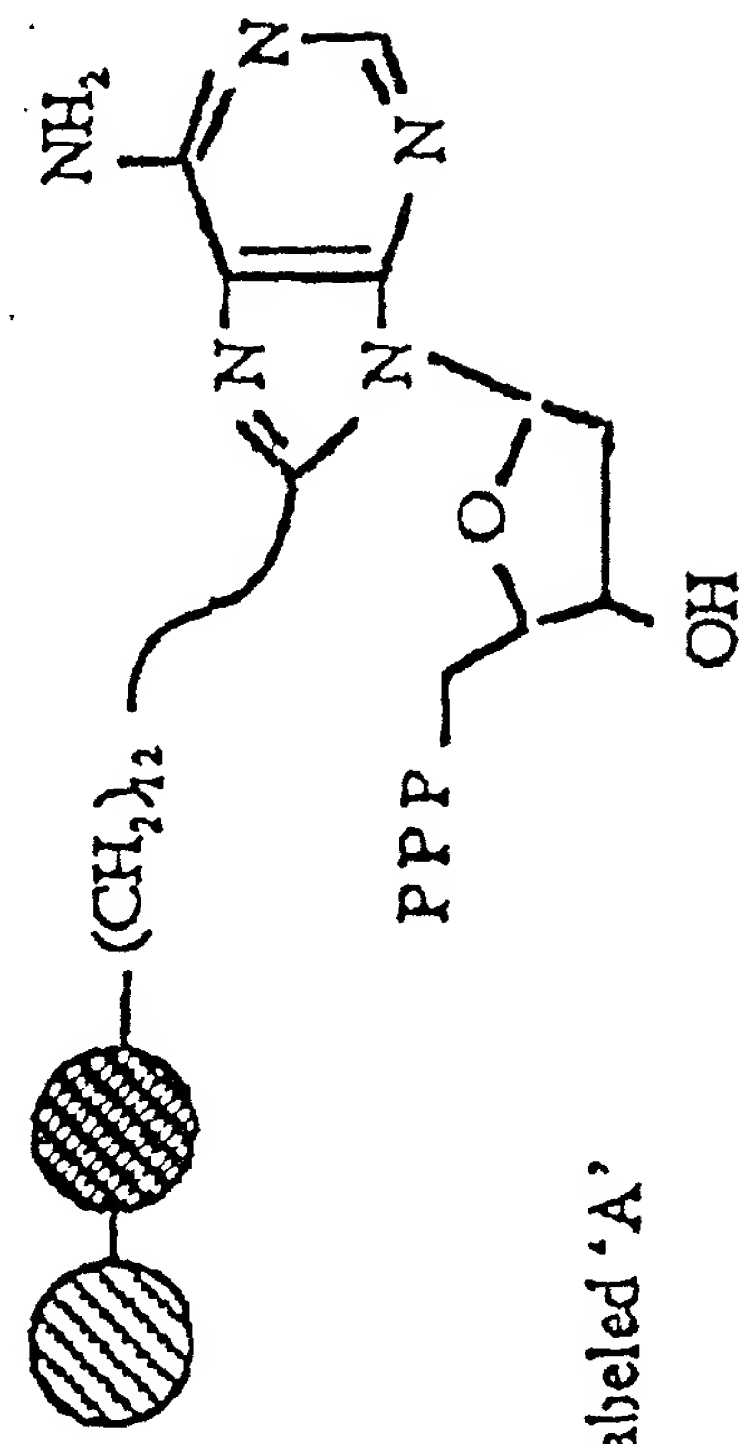
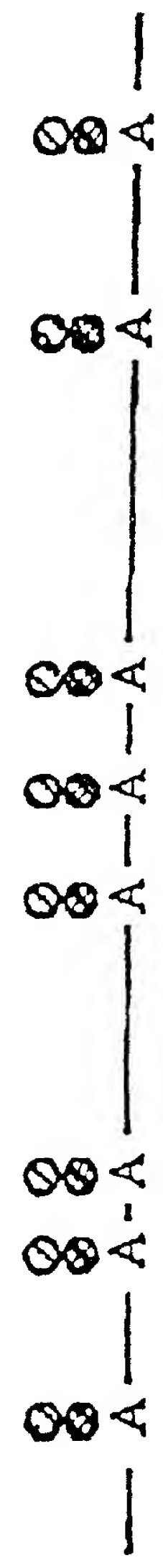


FIGURE 6

scheme of dual labeling of individual bases



dual characteristic labeled 'A'

FIGURE 7

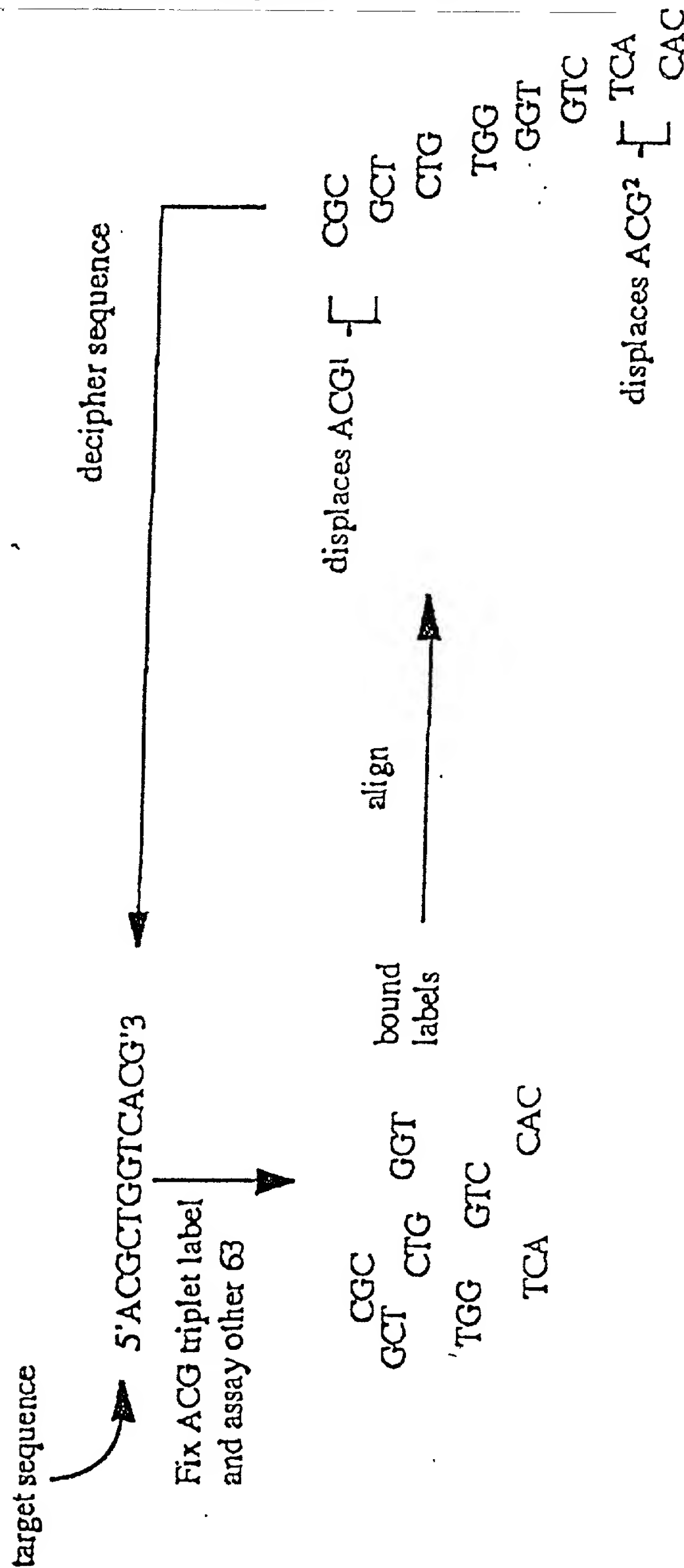


FIGURE 8

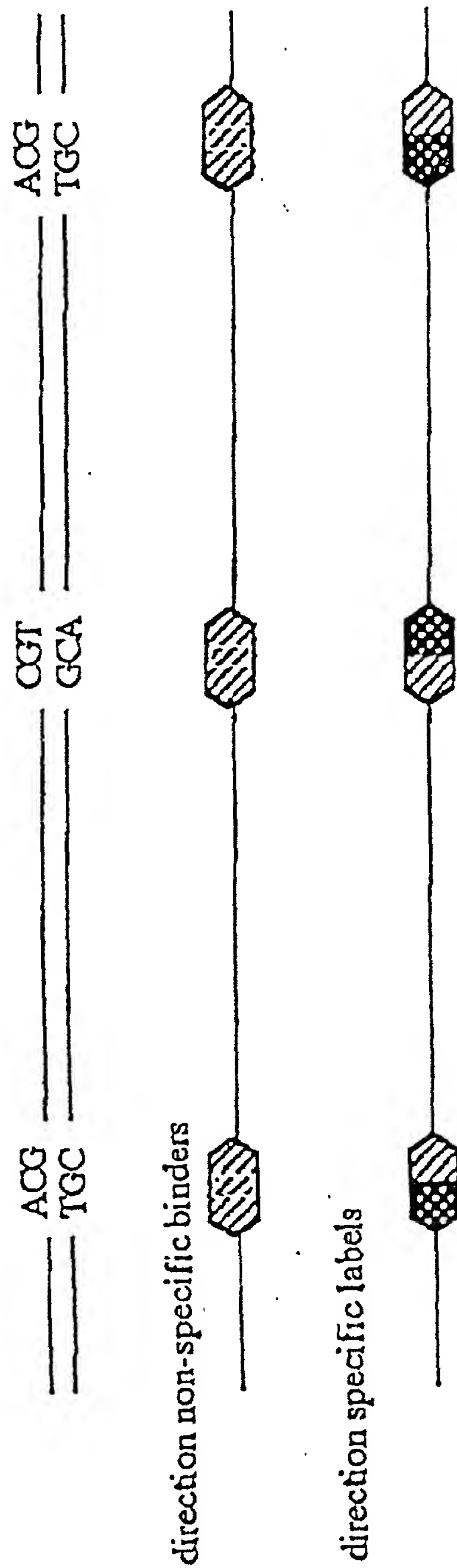
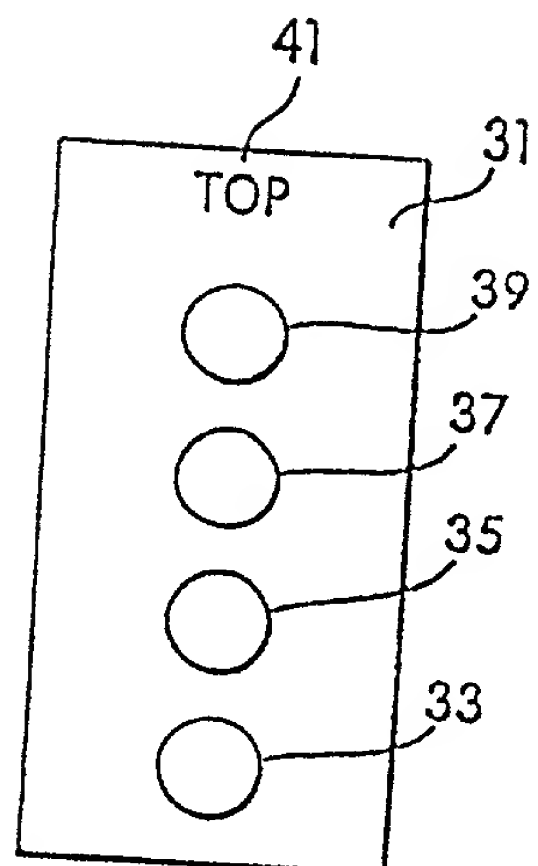
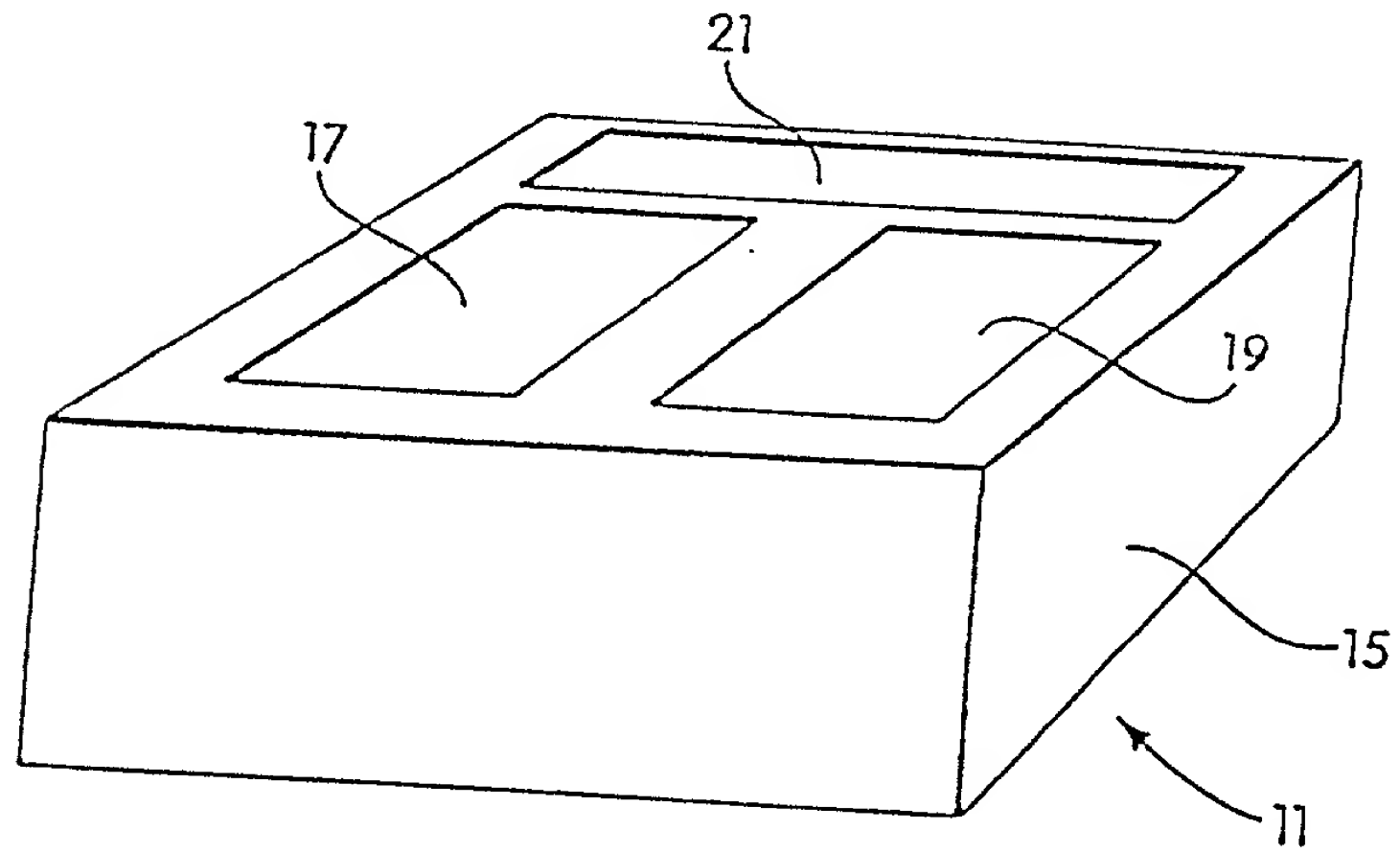
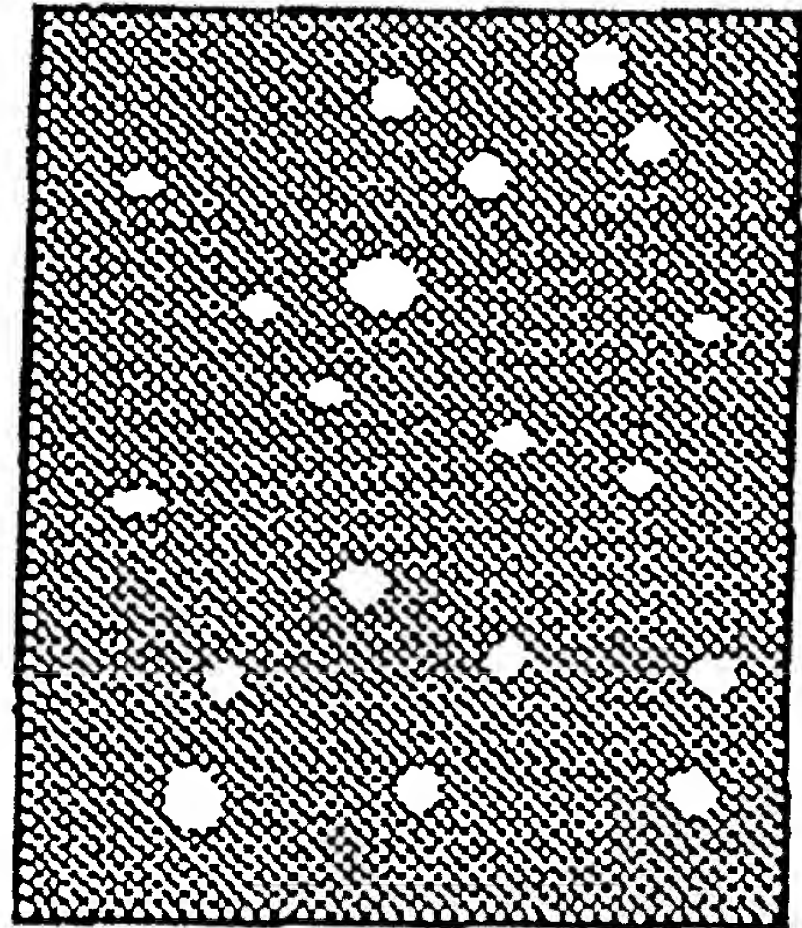
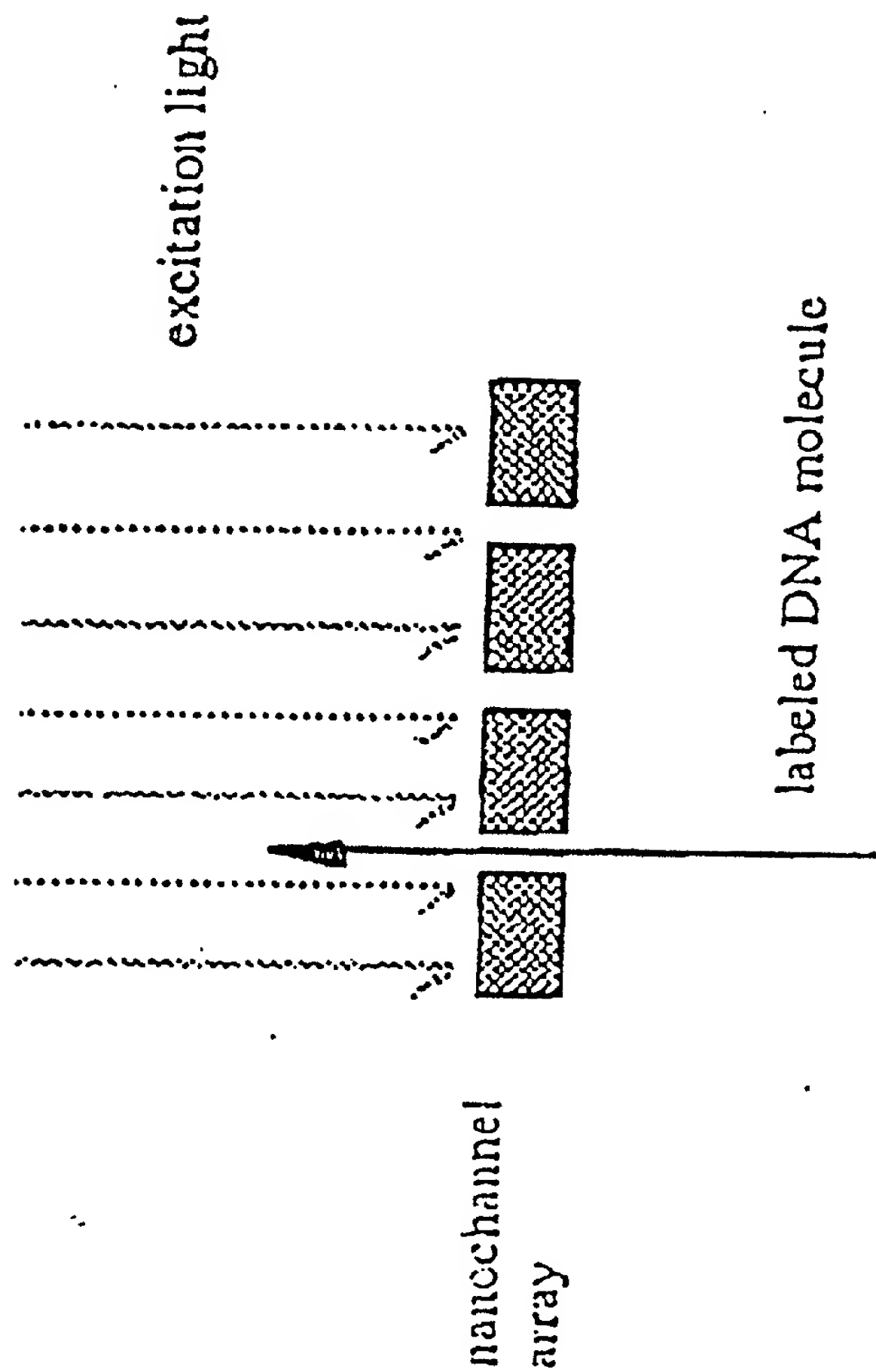


FIGURE 9

Figure 10





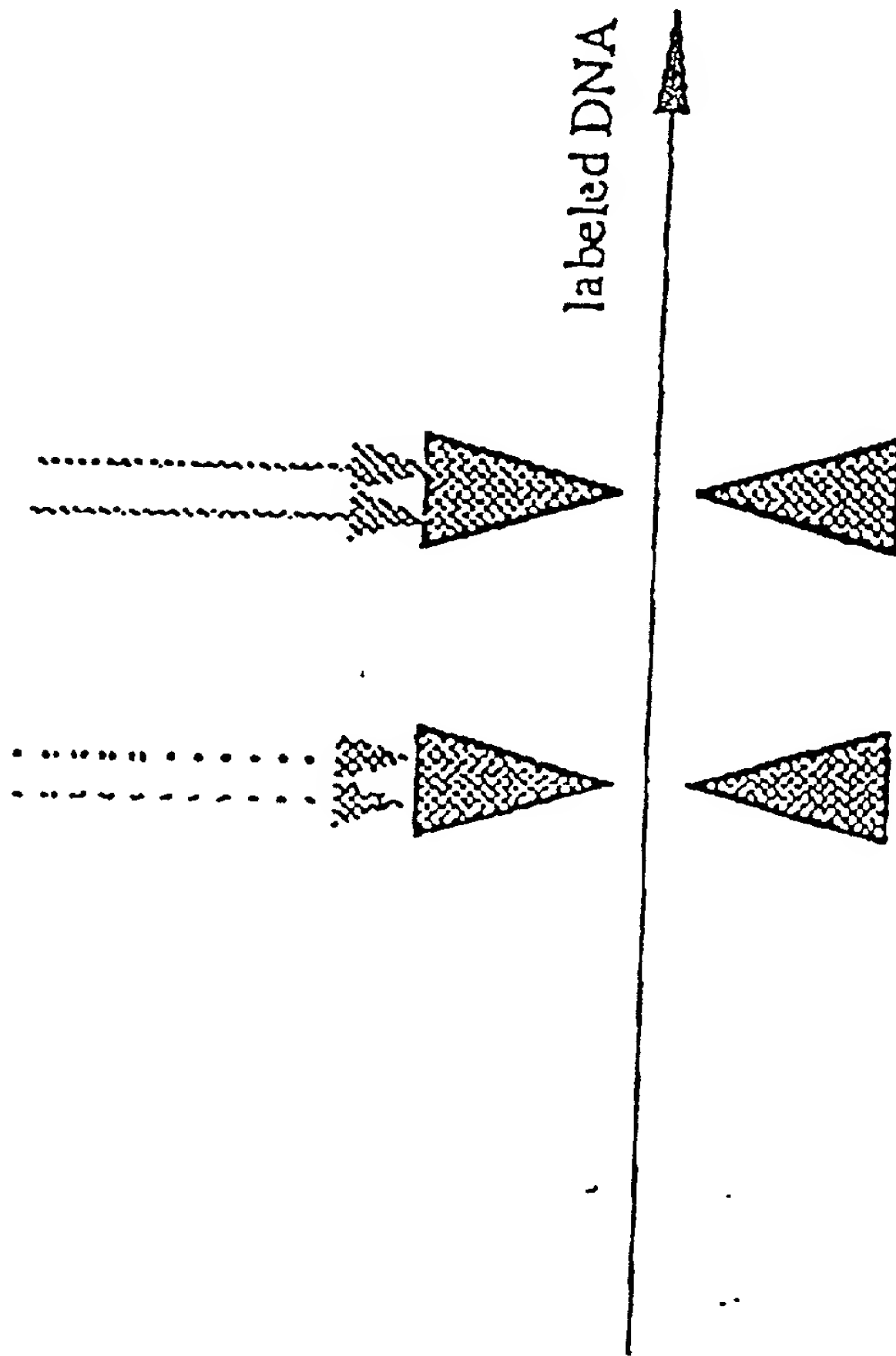
labeled DNA molecule

resulting fluorescence image

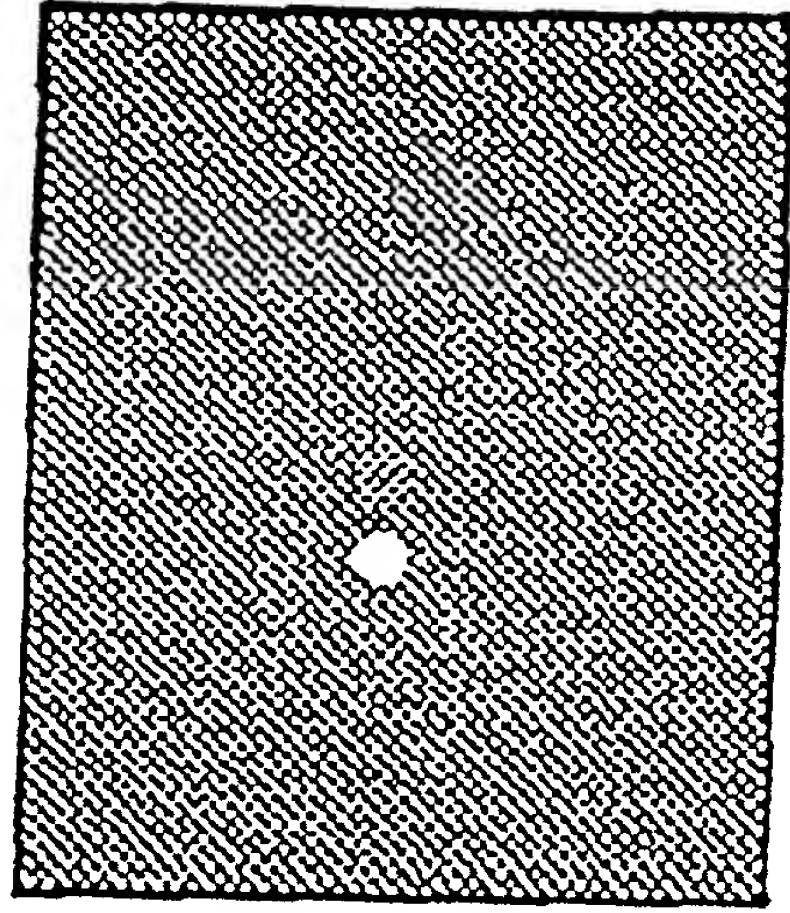
Example 1 and migration of DNA through nanochannel plate.

FIGURE 11

excitation light #1 input excitation light #2

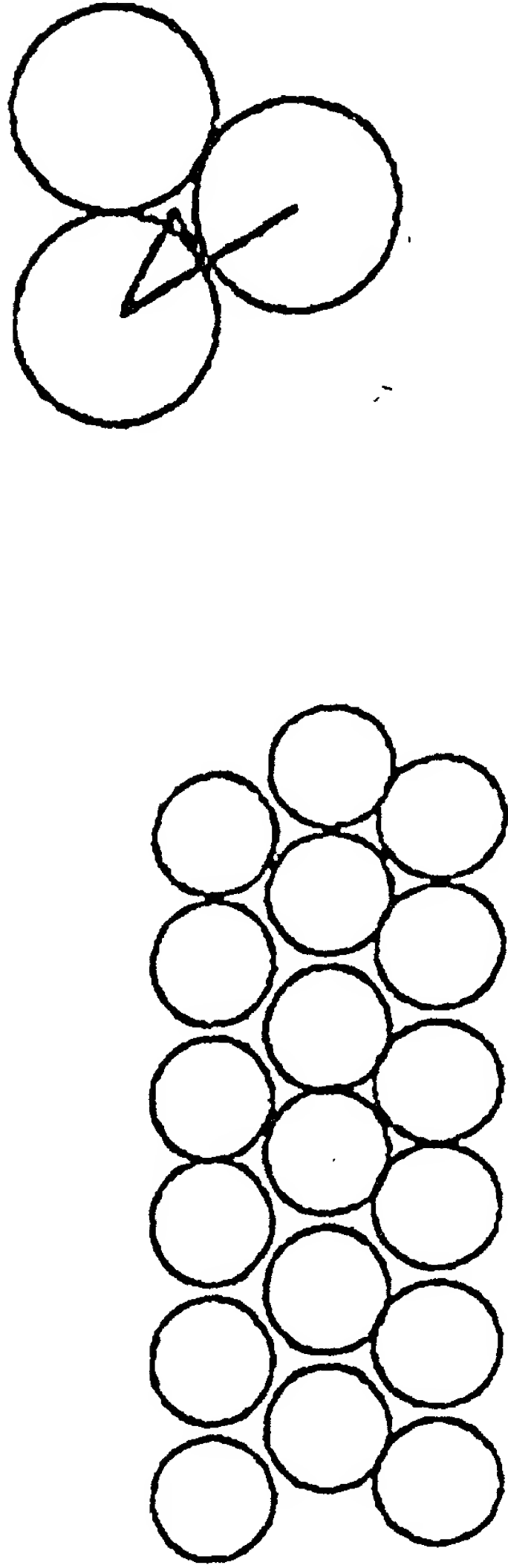


Nanofabricated nanostructures.



resulting fluorescence image

FIGURE 12



Example 3 of hexagonally packed beads as
restrictive nanostructures.

FIGURE 13